

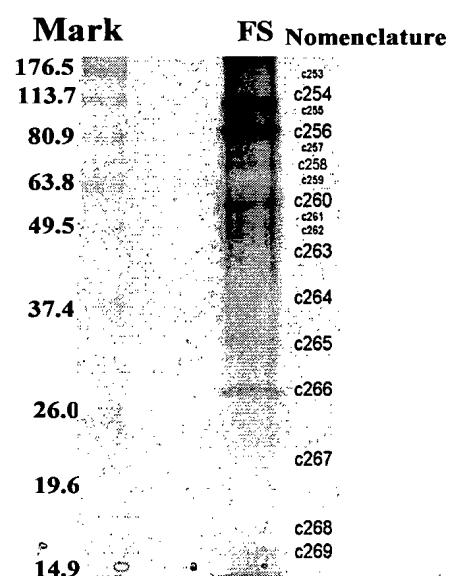
Figure 1. Isolation of human Fibrous Sheath**Figure 2. SDS-PAGE of human fibrous sheath proteins**

Figure 3. Microsequencing of Fibrous Sheath Proteins

Each band of fibrous sheath protein was microsequenced by mass spectrometry. The sequence result was summarized in table 1. The band C265 was identified as an unknown protein (DKFZp434N1235). Peptides microsequenced from the C265 band are indicated by bold.

Microsequencing of C265 by Mass Spectrometry

mhrepakkka **ekrlfdassf gkdllaggva aavsktavap iervkllqv qasskqispe**
arykgmvdcl vripreqgff sfwrgnlav iryfptqaln fasdkdkyqkql fmmsgvnkekq
fwrwflanla sggaagatsl cvvypldfar trlgvdigkg peerqfkglg dcimkiaksd
giaglyqgfg vsvqgiivyr **asyfgaydtv kglpkpkkt pflvsffiaq vttcsgils**
ypfdtvrrm mmqsgeakrq ykg**tldefvk iyqhegissf frgafsnvlr gtggalvlv**
ydkikeffhi diggr

Mouse Orthologues of SFEC

msnesskkqs skkalfdpvs fskdllaggv aaavskttva piervkllq vqasskqisp
earykgmldc lvripreqgf lsvwrgnlav viryfptqal nfafdkdkyke lfmsgvnkek
qfwrwflanl asggaagats lcyypldfa rtrlgvdigk gpeqrqftgl gdcmkiaks
dglglyqgf gvsvqgiivy rasyfgaydt vkgllpkpkte tpflvsfiia qivttcsgil
sypfdtvrrr mmmqs gesdr qykgtdcfl kiyrhegvpf ffrgafsnil rgtggalvlv
lydkikefln idvggsssgd

Figure 4. SFEC is a testis specific Protein- Northern Analysis

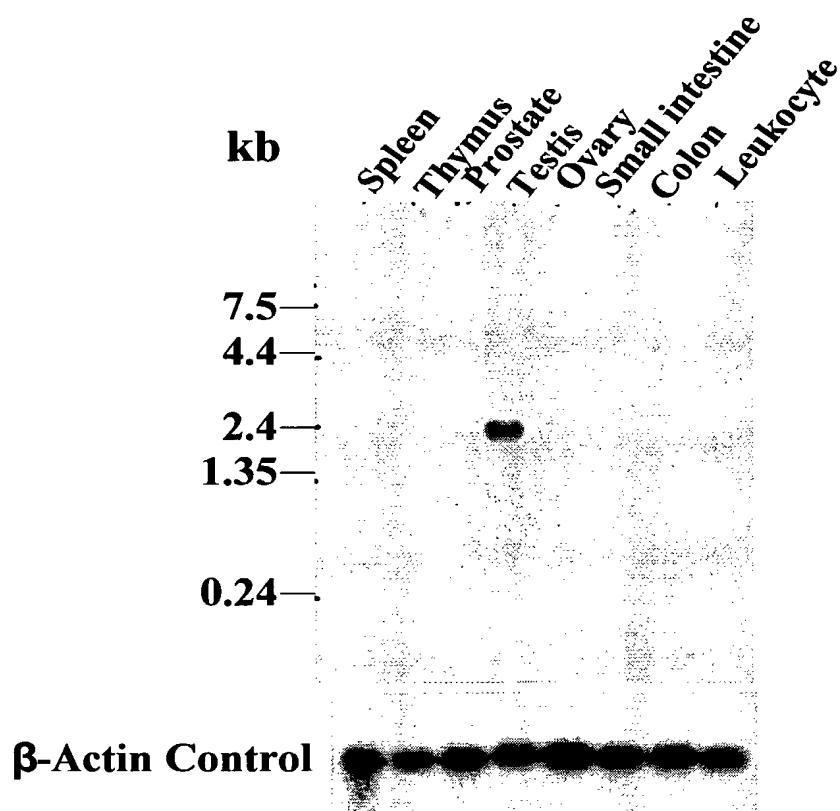
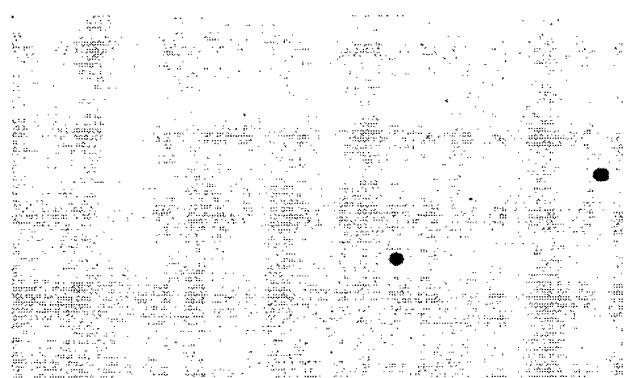
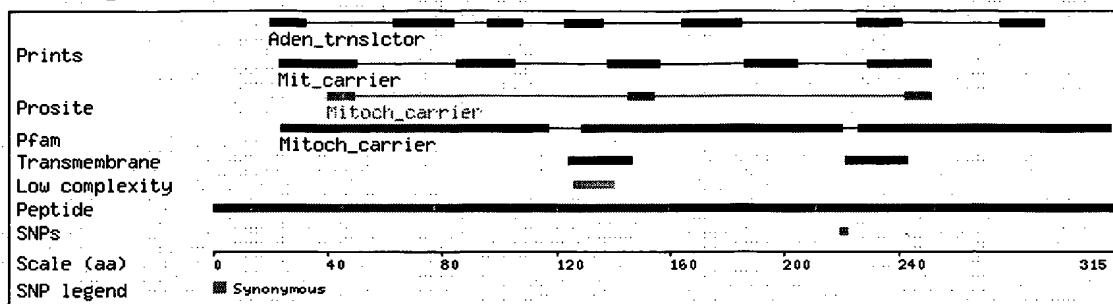


Figure 5- Dot blot analysis (upper panel) and human MTE array (lower panel) demonstrating testis specific expression of SFEC



	1	2	3	4	5	6	7	8	9	10	11	12
A	whole brain	coronary artery	uterine cervix	testis	uterine cervix	colon transverse	pancreas	lung	uterus	prostate (LNCaP)	uterus (MCF-7)	uterus (HTR-8)
B	cervical cancer	coronary artery	uterine cervix	uterus	uterine cervix	colon transverse	uterus	uterus	uterus	uterus (LNCaP)	uterus (MCF-7)	uterus (HTR-8)
C	frontal cortex	coronary artery	uterine cervix	uterus	uterine cervix	colon transverse	uterus	uterus	uterus	uterus (LNCaP)	uterus (MCF-7)	uterus (HTR-8)
D	frontal lobe	coronary artery	uterine cervix	uterus	uterine cervix	colon transverse	uterus	uterus	uterus	uterus (LNCaP)	uterus (MCF-7)	uterus (HTR-8)
E	occipital lobe	coronary artery	uterine cervix	uterus	uterine cervix	colon transverse	uterus	uterus	uterus	uterus (LNCaP)	uterus (MCF-7)	uterus (HTR-8)
F	temporal lobe	hippo- campus	uterine cervix	uterine cervix, left	uterus	peripheral blood monocyte	prostate	uterus	uterus	uterus (LNCaP)	uterus (MCF-7)	uterus (HTR-8)
G	p. g.* of cerebral cortex	medulla oblongata		inter- ventricular septum	appendix		lymph node	uterus	uterus	colon adenocar- cinoma, SW403	uterus (LNCaP)	uterus (MCF-7)
H	post.	putamen		apex of the heart	colon, ascending		trachea			lung carcinoma, A549		uterus (HTR-8)

*paracentral gyrus

Figure 6- Functional Domains of SFEC

Domain type	Accession number	Description	Start	End
prints	<u>PR00926</u>	Mit_carrier	23	36
prints	<u>PR00926</u>	Mit_carrier	36	50
prints	<u>PR00926</u>	Mit_carrier	85	105
prints	<u>PR00926</u>	Mit_carrier	138	156
prints	<u>PR00926</u>	Mit_carrier	186	204
prints	<u>PR00926</u>	Mit_carrier	229	251
prints	<u>PR00927</u>	Aden_trnslctor	20	32
prints	<u>PR00927</u>	Aden_trnslctor	63	84
prints	<u>PR00927</u>	Aden_trnslctor	96	108
prints	<u>PR00927</u>	Aden_trnslctor	123	136
prints	<u>PR00927</u>	Aden_trnslctor	164	185
prints	<u>PR00927</u>	Aden_trnslctor	225	241
prints	<u>PR00927</u>	Aden_trnslctor	275	290
Pfam	<u>PF00153</u>	Mitoch_carrier	24	117
Pfam	<u>PF00153</u>	Mitoch_carrier	129	220
Pfam	<u>PF00153</u>	Mitoch_carrier	226	314
prosite	<u>PS00215</u>	Mitoch_carrier	40	49
prosite	<u>PS00215</u>	Mitoch_carrier	145	154
prosite	<u>PS00215</u>	Mitoch_carrier	242	251

Domain type	Start	End
Transmembrane	124	146
Transmembrane	221	243
Low complexity	126	140

Figure 7. Alignment of Amino Acid Sequences of SFEC with other human proteins having a similar domains

Heart (ADT 1): identity (69%) similarity (79%)

Liver (ADT 3): identity (67%), similarity (80%)

Fibroblast (ADT 2): identity (67%), similarity (79%)

Figure 8. Human Fibrous Sheath Peptides involved in Energy Production

Gene/Gene Symbol	Peptides	Gene Locus	Tissue Distribution
Aldolase A, Fructose-bisphosphate ALDOA	1)GILAADESTGSIAK 2)IGEHTPSALAIMENANVLAR 3)GVVPLAGTNGETTQQLDGLSER 4)FSHEEIAMATVTALR 5)IGEHTPSALAIMENANVLAR	16q22-q24	Ubiquitously expressed
Pyruvate Kinase PKM2, Unknown protein	1)NTGIICTIGPASR 2)GADFLVTEVENGGSLGSK 3)GVNLPGAADVLPAVSEK 4)TATESFASDPILYRPVAVALDTK	15q22CM	Ubiquitously expressed
Sorbitol Dehydrogenase SORD	1)LENYPIPEPGPNEVLLR	15q15.3cM	Ubiquitously expressed (spermatogenic cells)
Lactate Dehydrogenase LDHA	1)DYNVTANSK 2)VTLTSEEEAR 3)VIGSGCNLDSAR 4)LVIIITAGAR 5)SADTLWGIQK 6)DQLIYNLLKEEQTPQNK 7)LKGEMMDLQHGSLFLR 8)DLADELALVDVIEDK	11p15.4	Ubiquitous
Triosephosphate Isomerase 1 TPI1	1)TATPQQAQEVHEK 2)LDEREAGITEK 3)IAVAAQNCYK 4)SNVSDAVAQSTR 5)IYGGSVTGATCK 6)VTNGAFTGEISPGMIK 7)HVFGESDELIGQK 8)FFVGGNWK 9)DCGATWVVLGHSER 10)VPADTEVVCAPPTAYIDFAR 11)VVLAYEPVWAIGTGK 12)QSLGELIGTLNAAK 13)KFFVGGNWK 14)RHVFGESDELIGQK 15)KQSLGELIGTLNAAK 16)VAHALAEGLGVIACIGEK	12p13	Ubiquitously expressed

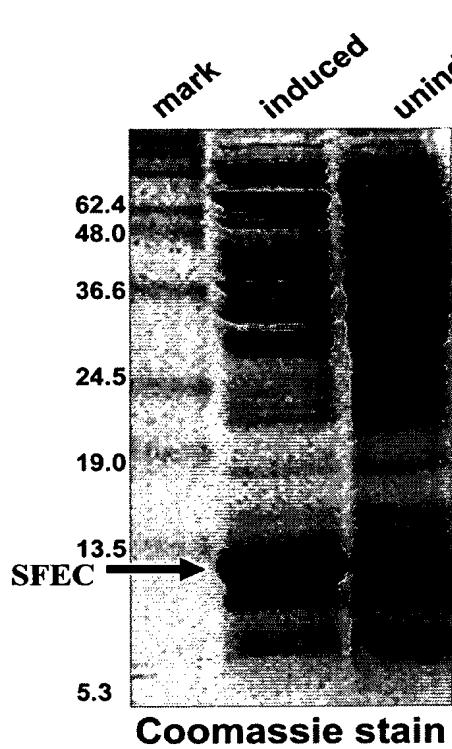
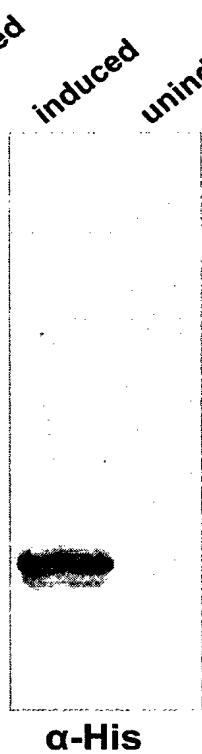
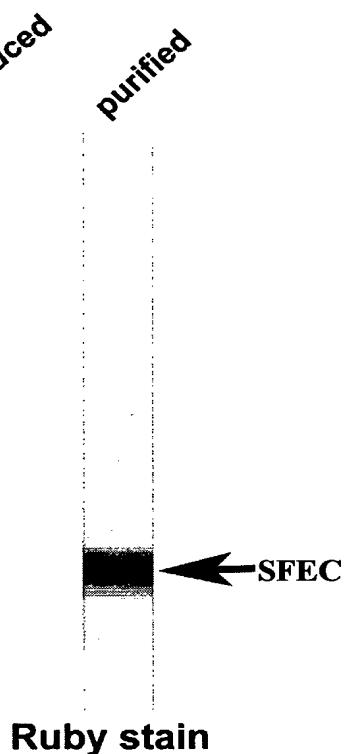
Figure 9- Expression and Purification of recombinant SFEC**FIG. 9A****FIG. 9B****FIG. 9C**

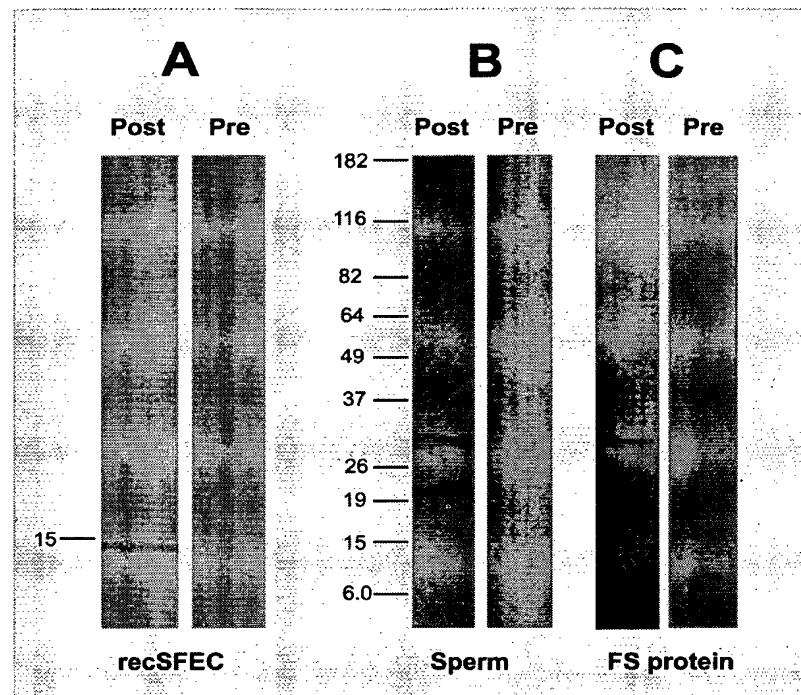
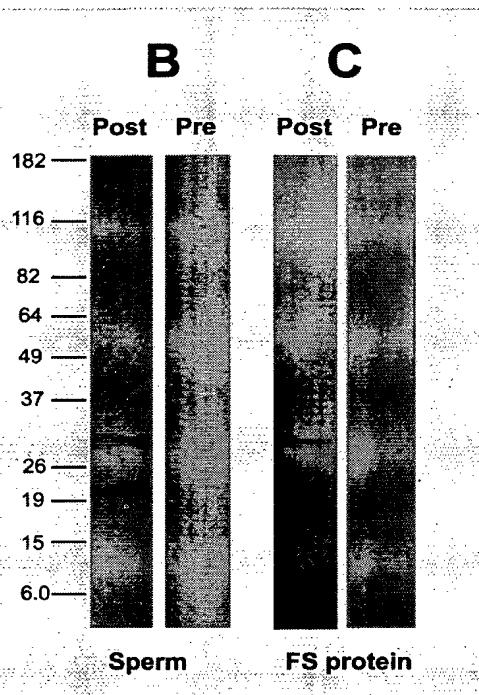
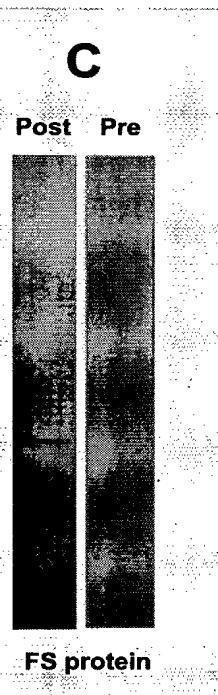
Figure 10- Western Analysis of SFEC**FIG. 10A****FIG. 10B****FIG. 10C**

Figure 11- Localization of SFEC to the Principal Piece of the Flagellum

FIG. 11A



FIG. 11B



FIG. 11C



FIG. 11D

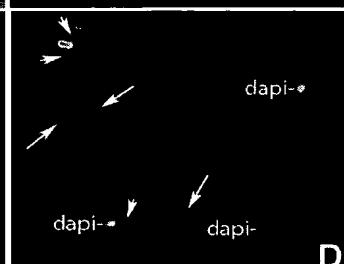


FIG. 11E



FIG. 11F

